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Dispensing cap with chamber

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ABSTRACT

A dispensing cap (11) for a container, the cap having a closure member (16) movable from a first closed position to an open position in which fluid can pass through the cap, the closure member also being movable between the open position and a second closed position; and a chamber (24) for holding material to be dispensed from the cap, whereby the closure member is initially in the first closed position and when the closure member is moved to the second closed position, the material is released from the chamber.

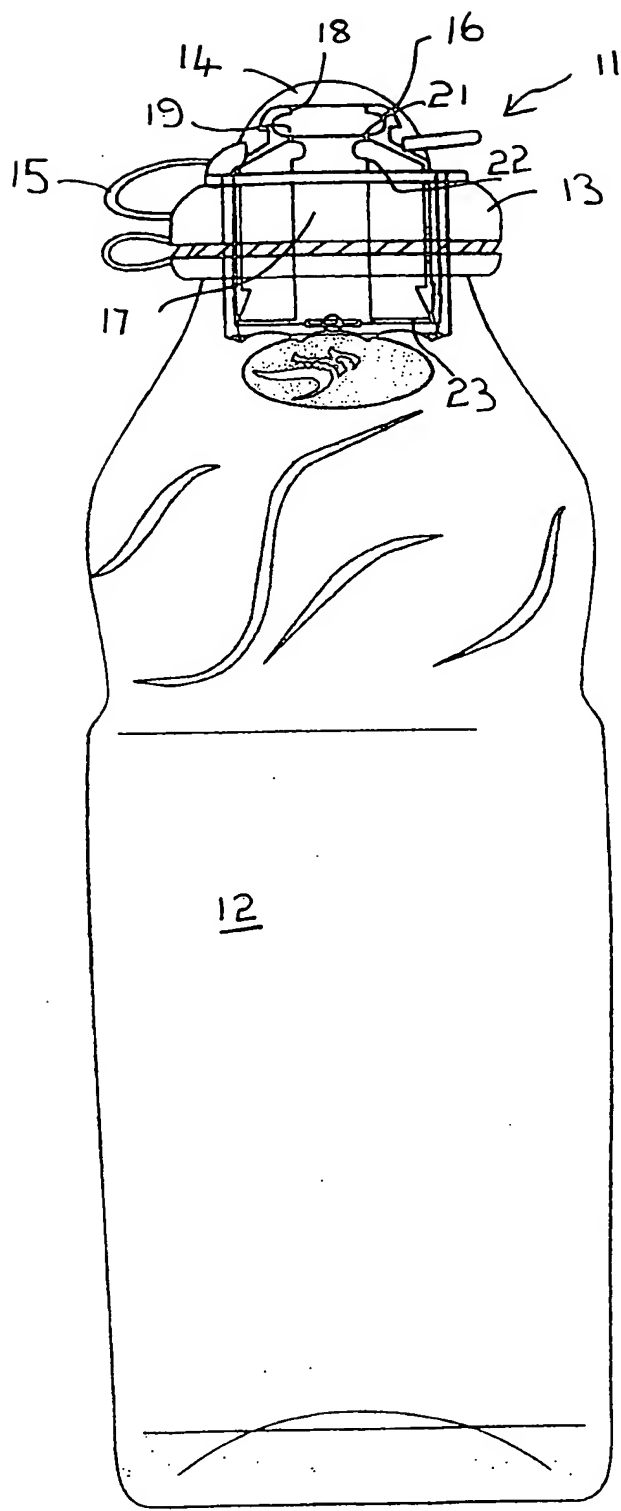


Fig. 1

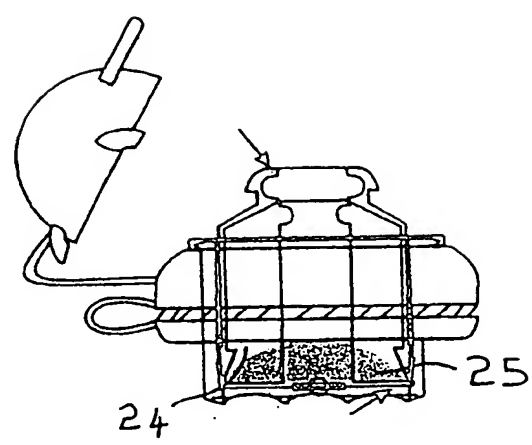


Fig. 2

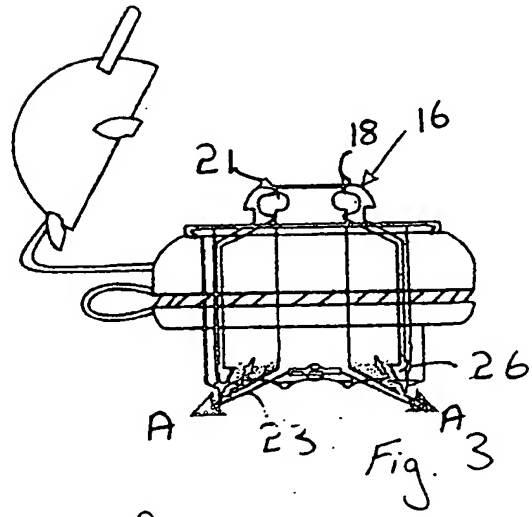


Fig. 3

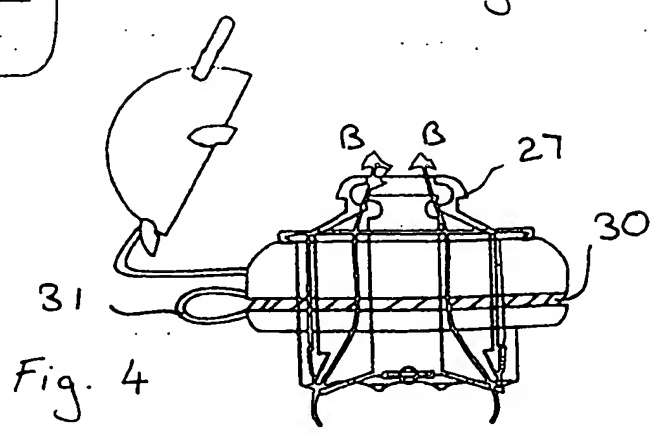


Fig. 4

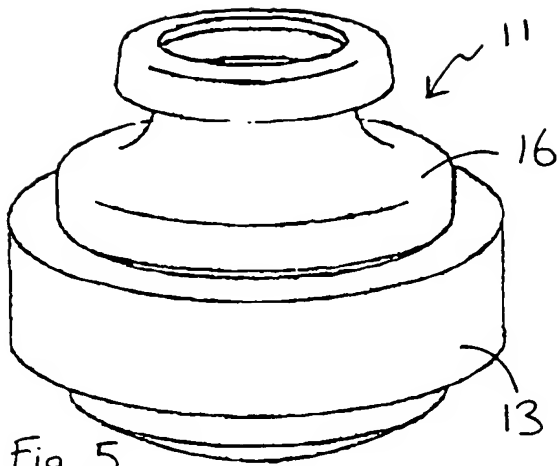


Fig. 5

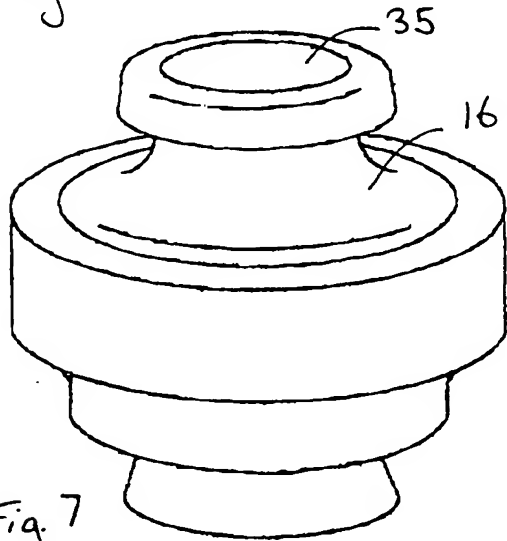


Fig. 7

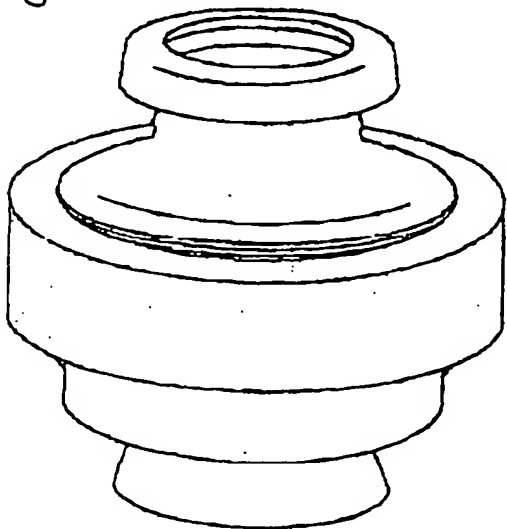


Fig. 9

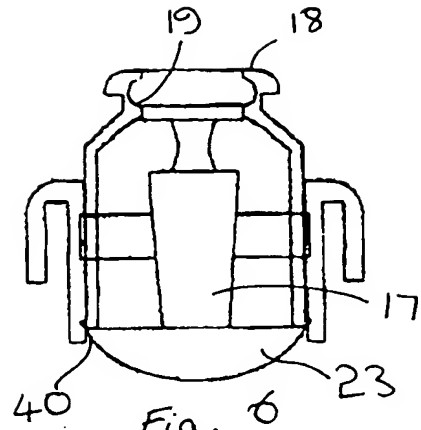


Fig. 6

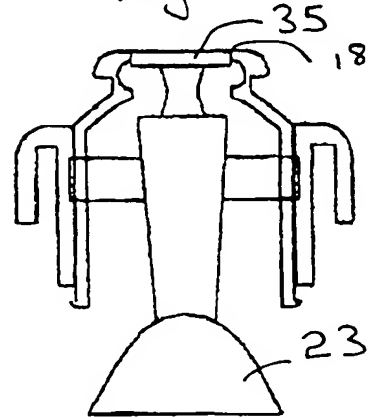


Fig. 8

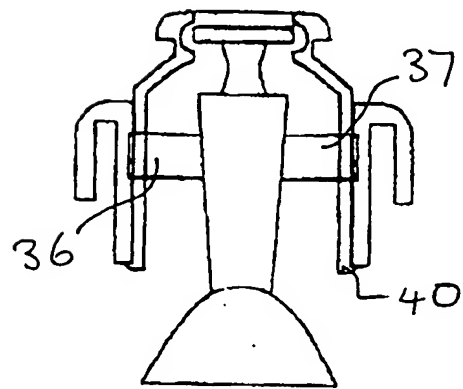


Fig. 10

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**COMPLETE SPECIFICATION
FOR A PETTY PATENT**

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The following statement is a full description of this invention including the best method of performing it known to us:

A DISPENSING CAP

5 The present invention relates to a dispensing cap for use with a container and in particular a dispensing cap for use with a drink or beverage container.

 The present invention will be described with particular reference to a cap for use with a beverage or drink container. However, it will be appreciated that the dispensing cap may be used with any other types or container and no limitation is intended thereby.

10 Dispensing caps for dispensing a material contained in the cap into a container upon which the cap is mounted are known. Dispensing caps are used where it is desirable to keep components of a mixture separate until prior to use. This may be applicable in cases where some ingredients are unstable in solution.

15 Dispensing caps typically have a chamber for housing the material to be dispensed. In the known caps, the chamber is typically separated from the main body of the container by a frangible membrane. The cap is typically provided with a means to rupture the membrane and to release the contents of the chamber. The membrane is typically ruptured by a piercing member.

20 The piercing member may be urged towards the membrane by pushing downwardly on the upper end of the member.

 In some caps, the piercing member must be removed from the cap after use to allow liquid to pass through the cap. However, this is often inconvenient to a user and further creates a separate waste item which must
25 be disposed of.

 In order to overcome this difficulty, some earlier caps allow the piercing member to become dislodged and fall into the body of the container after use.

 However, many users would prefer not to have a foreign object floating about in a beverage to be drunk.

30 One approach to this problem has been to modify the known sipper type caps. Such caps have a push-pull type function to open and close a spout through which the fluid is drunk. The modified caps have a frangible membrane which can be ruptured by the spout when the spout is pushed to

the closed position. However, this requires that the cap is in the open position before first use. This is undesirable and may allow contamination of the material in the cap.

5 It is therefore an object of the present invention to provide a dispensing cap which may at least partially overcome the above disadvantages by providing the public with a useful choice.

According to a first broad form of the invention, there is provided a dispensing cap for a container, the cap having a closure member movable from a first closed position to an open position in which fluid can pass through the cap, the closure member also being movable between the open position and a second closed position; and a chamber for holding material to be dispensed from the cap, whereby the closure member is initially in the first closed position and when the closure member is moved to the second closed position, the material is released from the chamber.

15 The cap of the present invention is typically used with a beverage or drink container. Typically the container is a bottle which may be made from suitable materials such as PET, glass or polyolefin materials. The cap is typically a snap on or screw threaded for mounting to the bottle.

The cap is typically a sipper cap of the type in which a drink may be drunk through the cap. In this case, the closure member may be in the form of a spout having one or more apertures through which liquid may pass. The spout is typically slidably mounted within a collar. The collar typically has means for attaching the cap to a neck of a bottle. The spout is movable from a first closed position to an open position and between the open position to a second closed position. Typically in the closed positions, the aperture(s) are blocked by a projection or the like. In a preferred form of the invention the cap includes a stem which extends through the center of the spout. In this case the spout may have a pair of concentric upper lips. The spout may be moved between an open position in which the lips do not contact the stem and closed position in which the stem contacts and seals against one or the other of the lips.

30 The cap includes a chamber for holding a material to be dispensed into the container. The material may be a liquid, powder, granules, tablet or the

like. Where the container holds a beverage the material may include vitamins, minerals, other nutritional supplements, herbal extracts, medicines, colors, flavors and the like.

When the closure member is moved to the second closed position, material is released from the chamber. Typically, the chamber has a sealing member. Generally, this sealing member prevents liquid in the container from coming into contact with the material in the chamber. When the closure member is moved to the second closed position, the seal formed by the sealing member is broken so as to release the material. The seal may be broken by rupturing the member, deforming or moving the seal. The sealing member may be cup shaped and moveable to an inverted position to release the material. Typically, the seal is broken by a seal breaking member which may be integral with or operatively associated with the closure member. Preferably, it is not possible to re seal the chamber after the seal has been broken.

By way of example only, the present invention will be described with reference to the accompanying figures in which;

Figure 1 is a schematic cross sectional view of a preferred dispensing cap of the present invention attached to a beverage container;

Figure 2 illustrates the cap of figure 1 in the initial closed position;

Figure 3 illustrates the cap of figure 1 in the second closed position;

Figure 4 illustrates the cap of figure 1 in the open position;

Figure 5 is a perspective view of a further preferred dispensing cap of the invention in the initial closed position;

Figure 6 is a cross-section of the cap of Figure 5;

Figure 7 is a perspective view of the cap of Figure 5 in the second closed position;

Figure 8 is a cross-section of the cap of Figure 7;

Figure 9 is a perspective view of the cap of Figure 5 in the open position;

Figure 10 is a cross-section of the cap of Figure 9;

Figure 11 is a perspective view of the spout of the cap of Figure 5;

Figure 12 is a perspective view of the stem and sealing member of the

cap of Figure 5 in the pre-release position;

Figure 13 is a perspective view of the stem and sealing member of Figure 12 in the release position; and

Figure 14 is a perspective view of the housing of the cap of Figure 5.

5 Figure 1 illustrates a dispensing cap 11 attached to a beverage container 12. The cap has a housing 13 which has an internal screw thread for attachment to the neck of the container 12. The cap 11 has a top cover 14 which is attached by a snap fit. The cover 14 is connected to the housing 13 by a connector 15. The cap may be fitted with a tamper evident seal
10 (although this forms no part of the invention).

 The cap has a tubular spout 16 which snugly fits within the housing 13 and is slidable in a vertical direction within the housing 13. A stem 17 is located within the spout 16. The spout has an upper 18 and a lower 19 inwardly facing concentric lip. The stem 17 also has upper 21 and lower 22
15 outwardly facing concentric lips.

 Figure 2 illustrates the cap in the first closed position after the cap 14 has been lifted away from the housing 13. The cap would typically be in this position upon purchase. It can be seen that the lower lip 19 of the spout and the upper lip 21 of the stem contact and provide a seal. Lip 19 projects over
20 lip 21. A sealing member 23 is attached to the lower end of the stem. The seal 23 is in the form of a disc and seals against the inner wall of the housing 13. A chamber 24 is defined within the housing and contains a powder 25.

 Figure 3 illustrates the cap in the second closed position. The spout 16 has been pushed downwards by a user until upper lip 18 contacts upper
25 lip 21. The lower section 26 of the spout pushes the outer edges of the sealing member 23 downwards and away from the inner wall of the housing 13. This breaks the seal and allows the powder to be released into the body of the bottle in the direction of arrows A. The sealing member 23 is formed from a plastics material. The sealing member is designed such that when in
30 the open position, it is biased into that position and cannot be returned to the sealed position.

 It can be seen that during this release, the contact between the respective upper portions of the stem 17 and spout 16 provides a seal so as

to prevent liquid passing through the spout. This allows the bottle to be shaken to disperse and/or dissolve the powder immediately upon release into the bottle. After the liquid has been dispersed, the spout may then be raised to the position shown in Figure 4. An outer lip 27 facilitates a user's grip on the cap to facilitate lifting of the spout 16. In this position, fluid can pass through the cap as illustrated by arrows B.

The cap 11 also has a frangible seal 30 which separates upper and lower sections of the housing 13. When this seal is broken, the upper part of the housing 13, together with the spout and stem may be lifted away from the bottle neck. The upper section however remains connected to the lower section through connecting member 31. This procedure allows a user access to the contents of the bottle without activating the spout and releasing the powder. This may be desirable if a user does not wish to drink the mixed beverage at that time. The upper section of the housing may be pivoted back into place and the powder released at a later stage. In this way, a user may also be able to obtain a more concentrated mixture, if desired, by releasing some of the fluid from the bottle before adding the powder.

The cap may easily be assembled by first providing the housing with the seal intact. The powder is then added in the desired amount. The spout is then slid into the housing. Premature activation of the spout to release the powder is inhibited by contact of the lower lip 19 of the spout 16 with the upper lip 21 of the stem 17. (The spout is made of a resilient plastics material such that, when required, a user may push the lower lip 19 past the upper lip 21). Also, a projection (not illustrated) is provided on the inner wall of the housing at a point just below the lower end of the spout. These projections are also resilient which enables a user to be able to push the spout downwards when activating the spout.

Figures 5 – 14 illustrate a further preferred dispensing cap of the invention. The same reference numerals have been used to identify the same or like parts. The cap shown in Figures 5 to 14 has a housing 13, spout 16 and stem 17. The stem 16 has an upper sealing disc 35 which seals against either the lower lip 19 of the spout 16 as shown in Figure 6 or the upper lip 18 of the spout as shown in Figure 8.

The sealing member 23 is made from a resilient plastics material and is cup shaped. In the pre-release position as shown in Figure 6, the cup shaped sealing member 23 may hold the powder. As the spout 16 is pushed downwards by a user, the sealing member 23 is inverted to the position shown in Figures 8 and 10.

It can be seen that the sealing member 23 returns to the pre-release position (which would block fluid flow through the cap).

The stem 17 has a pair of diametrically opposed arm members 36, 37. These members 36, 37 extend through opposed apertures 38 in the spout 16. The ends of the arms 36, 37 are received by vertical slots 39 in the housing 13. This holds the stem 17 in place relative to the housing 13. As the spout 16 is raised and lowered, the spout 16 is guided by the apertures 38 riding over arms 36, 37.

Pushing of the spout downwards past the second closed position is distributed by contact of the upper part of aperture 38 with arms 36, 37.

The lower end of the support 18 has an upturned lip 40. The spout 16 is made from a resilient plastics material which allows the walls of the spout to be resiliently pushed inwardly during assembly to the position illustrated in Figure 6 in which the lip 40 is located within the inner walls of the housing. As the spout is pushed downwards, to the position shown in Figure 8, the resiliency of the spout 16 allows the lip 40 to spring outwardly such that lip 40 now extends below the lower edge of the housing wall. As can be seen from Figure 10, raising of the spout 16 passed the open position of Figure 10 back to the first closed position in Figure 6 is prevented by contact of the lip 40 from the housing 13.

In practice, this is advantageous as it avoids or prevents a user inadvertently moving the spout past the open position to the first closed position.

The spout 16 is also provided with a number of projecting ribs 41 which facilitate frictional engagement between the inner walls of the housing and the spout 16.

It may be seen that the dispensing cap of the present invention allows a material to be dispensed into a beverage immediately prior to consumption

in a relatively easy and straightforward manner. The cap remains sealed during release of the material to allow for mixing of the contents in the bottle by shaking. Also, the cap is sealed prior to the initial use. Further, the cap is self contained and does not require a separate seal breaking member which
5 may fall into the body of a bottle after use or require separate disposal.

It will also be appreciated that various changes and modifications may be made to the invention as described and claimed herein without departing from the spirit and scope of the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A dispensing cap for a container, the cap having a closure member movable from a first closed position to an open position in which fluid can pass through the cap, the closure member also being movable between the open position and a second closed position; and a chamber for holding material to be dispensed from the cap, whereby the closure member is initially in the first closed position and when the closure member is moved to the second closed position, the material is released from the chamber.
2. The dispensing cap from claim 1, wherein the chamber is initially sealed by a sealing member moveable from a sealed to an open position and the sealing member is moved to the open position by contact with the closure member when the closure member is moved to the second closed position.
3. The dispensing cap of claim 1, substantially as hereinbefore described with reference to Figures 1 to 4 or Figures 5 to 14.

DATED this 21ST day of May 2001

INTEGRATED MARKETING PTY LTD

By their Patent Attorneys

CULLEN & CO.

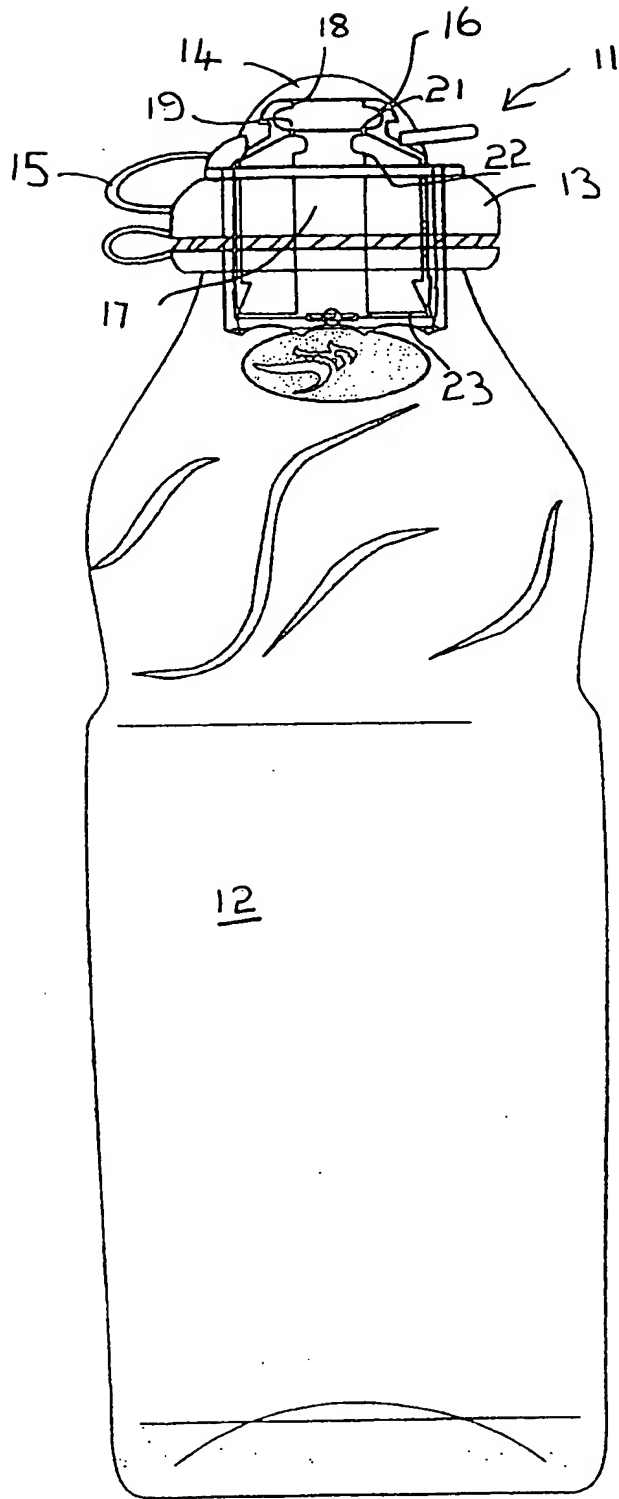


Fig. 1

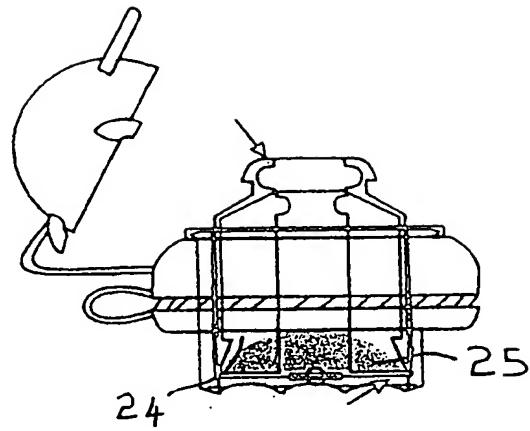


Fig. 2

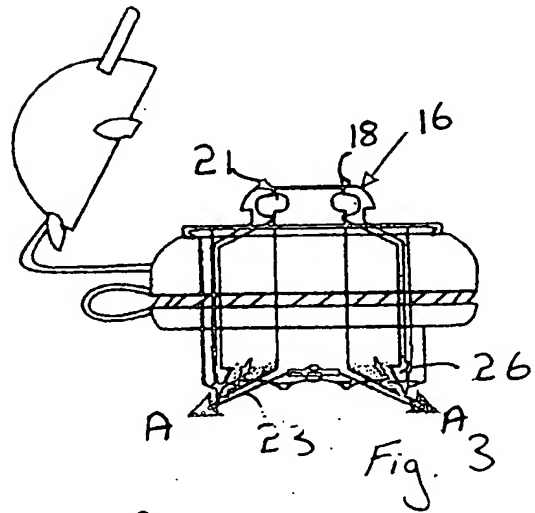


Fig. 3

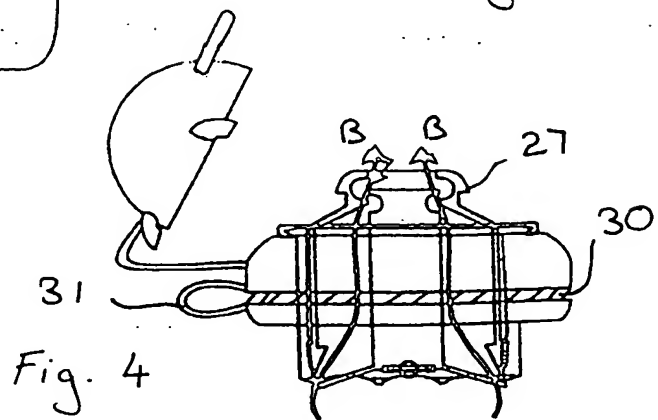


Fig. 4

